

## REMARKS

The claims remaining in the present application are Claims 1-10. The Examiner is thanked for performing a thorough search. Claims 1, 4, 5, 7 and 8 have been amended. No new matter has been added. For example, refer to the holey fiber optic cable depicted in figure 2B of the instant application serial no. 10/616,090.

## CLAIM REJECTIONS

### 35 U.S.C. §102

#### Claims 1, 4 and 6

Claims 1, 4 and 6 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,972,894 by Bjarklev et al. (referred to hereinafter as "Bjarklev"). Applicants respectfully submit that embodiments of the present invention are neither taught nor suggested by Bjarklev.

Bjarklev fails to teach or suggest, "An optical wave-guide absorption cell , comprising...a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core," as recited by Claim 1. For example, assuming for the sake of argument that Bjarklev's microstructure of features 12, 22, 33, 42, 52, 53, 115 (which he also refers to as "periodically placed features") is analogous to Claim 1's "holey wave-guide." Bjarklev's figures 1, 2, 3, 4, 5 and 10 depict Bjarklev's background material 21, 34, 43, 116 including Bjarklev's microstructure features 12, 22, 33, 42, 52, 53, 115. Note, Bjarklev's core 13, 20, 31, 50, 103 never includes Bjarklev's microstructure of features 12, 22, 33, 42, 52, 53, 115.

Further, Bjarklev states in the abstract, "First and second optical light sources may also be included, the second light source having an intensity sufficient to change the refractive index of the non-linear material sufficiently to encode or module the light from the first light source through the effect of leaking light from the first light source inside the guiding core to the outside of the guiding core." At Col. 16 lines 43-46 Bjarklev states, "but it will be co-propagating with the continuum of leaky cladding modes, and it will in practice couple to these and hereby the power will be rapidly dissipated." Bjarklev states, "In contrast to prior art, we obtain the possibility of controlling light between guided and non-guided (or leaky) modes" as stated in Col. 13 lines 54-56 using "a multiplicity of spaced apart cladding-structure

features, which cladding structure features may be air holes or voids” as stated at Col. 9 lines 21-24. Therefore, it appears to Applicant that Bjarklev teaches away from “An optical wave-guide absorption cell” as recited by Claim 1.

For the foregoing reasons, Bjarklev cannot teach or suggest “An optical wave-guide absorption cell , comprising...a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core,” as recited by Claim 1.

Claims 4 and 6 depend from Claim 1 and include all of the limitations of Claim 1. The dependent claims include additional limitations which further make them patentable. Therefore the dependent Claims should be patent for at least the reasons that independent Claim 1 is patentable.

#### 35 U.S.C. §103

##### Claims 2 and 3

Claims 2 and 3 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bjarklev in view of U.S. Patent No. 6,631,234 by Russell et al. (referred to hereinafter as “Russell”). Applicants respectfully submit that embodiments of the present invention are neither taught nor suggested by Bjarklev or Russell, alone or in combination.

As already stated, Claim 1 is patentable over Bjarklev because Bjarklev fails to teach or suggest “a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core,” as recited by Claim 1.

Russell does not remedy the deficiency in Bjarklev in that Russell does not teach, among other things, “a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core,” as recited by Claim 1. In fact, the Office Action does not even assert that Russell teaches “a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said

holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core," as recited by Claim 1.

Claims 2 and 3 depend from Claim 1 and include all of the limitations of Claim 1. The dependent claims include additional limitations which further make them patentable. Therefore the dependent Claims should be patent for at least the reasons that independent Claim 1 is patentable.

#### Claims 5 and 7-10

Claims 5 and 7-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bjarklev in view of U.S. Patent No. 6,496,634 by Levenson et al. (referred to hereinafter as "Levenson"). Applicants respectfully submit that embodiments of the present invention are neither taught nor suggested by Bjarklev or Levenson, alone or in combination.

As already stated, Bjarklev does not teach or suggest "a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core," as recited by Claim 1.

Levenson does not remedy the deficiency in Bjarklev in that Levenson does not teach or suggest "a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core," as recited by Claim 1. For example, based on Applicant's review of Levenson, Levenson does not teach a second core let alone teach or suggest "a primary core including a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide...a secondary core including said primary core," as recited by Claim 1. Therefore it is respectfully submitted that Claim 1 is patentable over Bjarklev and Levenson, alone or in combination. For similar reasons, Bjarklev does not teach or suggest "A fiber optic absorption cell comprising...a primary core; a secondary core that includes said primary core; a plurality of voids formed in said primary core," as recited by Claim 7.

Further, as already stated Bjarklev teaches “guided and non-guided (or leaky) modes” as stated in Col. 13 lines 55-56 using “a multiplicity of spaced apart cladding-structure features, which cladding structure features may be air holes or voids” as stated at Col. 9 lines 21-24. Therefore there would be no motivation to combine Bjarklev with Levenson because combining Bjarklev with Levenson would render Levenson inoperable and therefore would not be successful in arriving at “A fiber optic absorption cell comprising...a primary core; a secondary core that includes said primary core; a plurality of voids formed in said primary core,” as recited by Claim 7.

Claim 5 depends on Claim 1. Claims 8-10 depend on Claim 7. The dependent claims include all of the limitations of their respective independent claims. Further, the dependent claims include additional limitations which further make them patentable. Therefore, the dependent claims should be patentable for at least the reasons that the respective independent claims should be patentable.

### CONCLUSION

In light of the above listed amendments and remarks, reconsideration of the rejected claims is requested. Based on the arguments and amendments presented above, it is respectfully submitted that Claims 1-10 overcome the rejections of record. For reasons discussed herein, Applicant respectfully requests that Claims 1-10 be considered by the Examiner. Therefore, allowance of Claims 1-10 is respectfully solicited.

Should the Examiner have a question regarding the instant amendment and response, the Applicant invites the Examiner to contact the Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,  
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